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Helping Kids Learn

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Information Sheet 26

Sensory processing – helping to get the traffic flowing!

By Alison McDonald, Occupational Therapist, Early Childhood Services

Think of an uncomfortable situation – the weather is cold, you are wearing a scratchy woollen jumper, it is the end of the day, dark and the lights are irritating your eyes. Not only that, you’ve just picked the kids up and you are now stuck in rush hour heading home.

The traffic is at a stand still and the sirens that are whirring past are really getting on your nerves. To top it all off, the radio is blaring and the children are fighting and screaming in the back.

You’re tired, cold and hungry and your blood is boiling! Arghhhh!!

Apart from the obvious what does all this mean?

Dealing with every little situation and experience in our lives involves our brain and nervous system picking up, filtering, organising and adapting to sensory information.

Without our brain and nervous systems doing their job, the world would seem like complete chaos, leaving little opportunity to learn, adapt, mature and grow. It would feel like we were constantly stuck in grid locked traffic.

Coping with overstimulation

Back to our traffic scenario – what do you do in such a situation? How do you cope?

Well, your brain will do whatever it can to organise behaviours that make you comfortable and attentive to the most pressing needs – the traffic moving, the ambulance needing to get through or the children in the back.

You might drum your fingers on the steering wheel, twirl your hair or rub your arms where your jumper is scratching. Perhaps you might reach for a favourite family song to get everyone singing.

Whatever you do, your brain is making you do it.

You’re uncomfortable and in a challenging situation. You need to filter out all the annoying sensory information in order to calm down and attend to the pertinent needs of the traffic and children.

As an adult, you’ve had plenty of enjoyable experiences that have made positive memories. You know you’re only five minutes from home and the heating is on in the house. Dinner is in the oven and all will soon be well.

You can use sensory behaviours as well as comforting thoughts to help you calm down.

How does your child cope?

Children are still laying down positive memories that take years to become ingrained. They tend to require more sensory information and experiences to form the happy, positive memories necessary in learning.

Once again back to our traffic scenario – what are the children doing by now?

Maybe they are tired after a long day. Perhaps they are excited to see you and to be going home. Perhaps they have lots to talk about.

As the traffic grinds to a halt and the weather turns cold and dark, the novelty for your children of being in this situation is wearing thin.

At this point you observe the usual hitting and kicking the seats (and occasionally each other). The children are now also pulling at their seatbelts, kicking the back of the front seats and pressing their faces at the glass.

To the parent in the car, this may look like ‘difficult behaviours’. From a sensory processing perspective, these are young children with growing nervous systems doing whatever they can to divert attention from feeling uncomfortable.

Learning Links is a non-profit charity assisting children who have difficulty learning and their families.

We raise funds to help children from birth to 18 years by offering a range of services including the following.

Early Childhood Services for children from birth to six years.

- Early childhood intervention and support for very young children.
- An inclusive preschool for children with and without special needs.
- An assessment and consultancy service for families who are concerned about their young child's development.
- Specialist early childhood teaching and therapy.

School Age Services for children from Kindergarten to Year 12 who have low support needs.

- Comprehensive assessments.
- Small group tuition and therapy.
- Occupational and speech therapy programs combining specialist education services and therapy.
- Outreach programs.
- The Ronald McDonald Learning Program for seriously ill children and the Reading for Life Program for children falling behind in their reading.

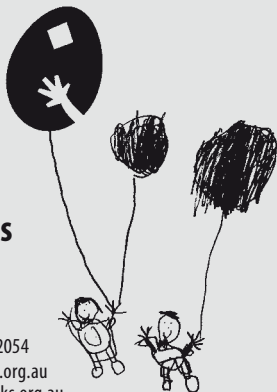
Family Services helping and supporting families and health professionals.

- Centre and home-based family counselling.
- Parenting Programs and groups for families.
- Case Management Services.

Professional Development for teachers and health professionals.

Presentations, workshops and advice on identifying and helping children with learning difficulties, learning disabilities and developmental delays.

Learning Links has branches in six Sydney locations at Peakhurst, Penshurst, Fairfield, Miller, Dee Why and Randwick. We also offer some services to children in country NSW, the ACT, Victoria and New Zealand. A complete list of branch locations and contact numbers is on the back cover.



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In the same way we have 'little habits' to maintain attention, children also have certain behaviours. However, children's behaviours are often more exaggerated as a young nervous system needs stronger sensory information for learning.

The environment and sensory information

Most importantly, it is the environment that provides sensory information.

The environment that a child is in will affect how their nervous system and thought patterns operate.

Could you imagine asking most children to recite a story or do their homework in the grid locked traffic discussed earlier? It's just the wrong environment, not to mention that you would be in no mood to respond calmly!

When a child is in an environment that suits them, the nervous system is calmed by the 'just right' factor of sensory information. It's as if the brain is the traffic controller and all the traffic is flowing perfectly so the traffic controller can focus on enjoying himself and learning!

In the early years we often observe children who are able to recite stories, count numbers and climb and jump fluently when they are playing freely.

At other times, when activities become more adult directed or 'therapy'-focussed the same children tend not to show all the skills they possess as the new demands of a different environment put too much pressure on their nervous system.

There is too much information to take in and the verbal or physical activities can't flow as they do when playing freely with no external demands. It's as if the traffic controller (or the brain) becomes disorganised by too many demands.

An environment that is enjoyable and balances adult demands with opportunities for free play and creativity will help children feel calm and in control. This in turn best enables the nervous system to organise itself so the child can learn through what they are seeing, hearing, tasting, smelling and doing.

Over many enjoyable learning experiences, positive memories become more and more ingrained and these contribute to further learning.

Behaviours that a child uses in a challenging situation or learning experience often give clues as to what best suits their nervous system for optimal learning and comfort.

Every person has his or her own unique sensory needs.

Think of what sensory behaviours and environments help you to learn. For example, playing music, bright/dim lights, twisting hair, drumming fingers, chewing pencil/nails/gum or looking out the window may all enhance learning.

Interpretation of sensory behaviours

There are many different behaviours seen in the early years and a number of ways they can be interpreted. These behaviours are often the child creating situations to make them feel better.

Unfortunately some of the behaviours such as kicking and punching can hurt other children, workers or teachers. The task is to provide alternative activities that give the child the same stimulation and feeling of well being as the undesirable behaviours.

Kicking, punching or being rough with people/objects

Sometimes kicking, punching or being rough and clumsy with people/objects reflects a child saying "If I kick and punch and bang things, I get lots of information to my muscles and joints and it helps me to feel better".

To provide similar sensory information you could set up activities that give lots of body awareness input through touch pressure to the muscles and joints.

Some examples of these include:

- playing on crash mats,
- rolling up in blankets,
- hugging cushions,
- bumping games with pillows,
- pushing/pulling/carrying heavy objects, and
- bear hugs and firm cuddles.



Yelling loudly, hitting objects, jumping and spinning

Sometimes enjoyment from yelling loudly, hitting objects, jumping and spinning reflects a child who is saying *"I love rhythm! I love hearing the vibration of my own voice. I love hearing sounds and vibrations from objects that I hit and I love the rhythmical giddy feeling I get if I move really fast or spin round and round!"*

To provide this sensory information you could set up activities that involve lots of movement and singing.

Some examples of these include:

- singing along to daily activities,
- clapping/dancing and singing to songs,
- using musical instruments,
- playing on swings, trampolines, rocking horses, and
- using hand held massagers.

Looking at objects or people, making patterns out of objects and playing or rubbing eyes

Sometimes fascination with 'looking' at objects or people, enjoyment of making patterns out of objects as well as playing with or rubbing at the eyes reflects a child who is saying *"I'm learning a lot about things by looking at them and experimenting with looking. I like it when objects are in a clear pattern and I can pay more attention when things are in a visual order."*

To provide this sensory information you could set up activities such as:

- looking games involving magnifying glasses, binoculars, looking through cellophane, etc;
- playing 'what can you see?' games and covering parts of pictures or faces then revealing the whole;
- creating visual order with objects such as categorising and complementing categories with pictures;
- playing movement games as well as 'work' activities in front of a mirror;
- hide and seek; and
- using pictures to show routines of the day.

Mouthing at non-food objects, chewing or sucking fingers

Sometimes mouthing at non-food objects, chewing or sucking fingers reflect a child who is saying *"I learn about objects if I can feel with my mouth as well as my hands. I feel calm and in control when I have something in my mouth, it helps me to stay still"*.

To provide this sensory information you could set up activities such as:

- providing safe objects or foods to chew or suck when being still;
- providing different tactile games with the hands such as covering objects in different materials such as cotton wool, sand paper, etc;
- using different sponges, loofahs or face clothes in the bath to touch and feel with the hands and face; and
- playing mouth games, sucking and blowing with different tubes, blowing wind toys and instruments, sucking drinks through different straws and rubbing objects and tongue around the mouth and lips.

Appearing 'lost' or 'passive' in large groups and crowded situations

Sometimes passive behaviour and appearing lost in large groups or crowded situations reflect a child who is saying *"it's too much information to take in when everyone moves around me. It makes me feel a bit giddy"*.

To help provide more calming sensory information you could set up activities such as:

- using pictures of places where a child is going such as a supermarket or group times to help prepare for a crowd;
- playing line-up games such as making a train or follow the leader and encouraging the child to be at the front of the train where there is less people clutter;
- encouraging small group activities with three to four children to build comfort in group situations; and
- providing a child with something to hold and look at such as photos or a visual toy in crowded situations.

Some hints on sensory information in the environment

Here are some tips on things in the environment that can affect your child's senses.

Smell

- Arousing and alerting smells include cooking smells, mint and eucalyptus.
- Calming smells include lavender and rose.
- Objects such as playdough made with essential oils.
- Use smell for colour identification for example mint for green dough, lemon for yellow and lavender for purple.
- Smelly pens and paints as well as scented paper can help in sustaining attention and interest especially to fine motor activities.

Vision

- Natural lights create a soft filtered light that is not too harsh (lace or muslin curtains may help to filter window light that is too bright).
- Lamps turning upwards in corners or a covered 'quiet' area create a calming secluded feeling.
- Cellophane on windows creates visual interest.
- Mats or chairs can be used to mark places in group activities.
- Primary colours on walls and furniture provide visual stimulation (take care as too many colour clashes can create visual clutter).

Hearing

- Carpets, rugs on a tiled floor, egg cartons glued to the wall and material furnishings such as banners and tablecloths can help reduce surround sound in noisy places.
- Background music with a regular beat such as children's songs or classical music tends to be calming and alerting.
- Background sounds such as wind, rain or pouring water as well as people walking or animals tend to make an indoor environment feel warm and welcoming.
- Pieces of carpet stuck to chairs/tables and furniture will help prevent disruptive sounds when things are being moved.



- Regular background noise such as fans or fish tanks can help reduce too much auditory information.

Touch

- Room temperatures that are too hot can cause lethargy.
- Room temperatures that are too cold can be stressful.
- Avoid irritating fabrics.
- Use different tactile sitting arrangements such as beanbags, pillows, cushions, rugs and chairs.

- Lying on the tummy or kneeling on all fours rather than just sitting at a chair provide different information to muscles and joints.
- Walk through light fabric or ripped curtains.
- Play with different sponges, brushes, spoons, pens, pencils, cotton buds, paddle pop sticks or cotton wool.
- Full length mirrors or reflections in glass can build body awareness information through tactile and visual senses.

- Have barriers to messy activities if children are sensitive to these, for instance give your child spades and buckets when they play with sand, use forks and cookie cutters when playing with playdough and have a towel nearby to wipe hands when needed.
- ‘Jobs’ around the house such as carrying groceries or a backpack often involve deep touch input to muscles and joints.

Introduction to Sensory Integration

By Emma McPherson & Alison MacDonald, Occupational Therapists, Early Childhood Services

What is sensory integration?

Sensory integration is about the brain and how it works. Generally speaking, sensory integration is information processing.

We all *take in* information from our world using our senses or sensory systems. The sensory systems that we are more familiar with are those relating to sight (visual), sound (auditory), smell (olfactory) and taste (gustatory).

The sensory systems that we are less familiar with relate to touch, movement and body position. The reason that we are less familiar with, or unaware of, these senses is because we process this information from these senses at an unconscious level.

After we have taken in this information we *process* it. That is, our brain and nervous system ‘sort out’ the information to help us make sense of or interpret it. We then act upon this information or *respond* to it.

There are many different parts of the nervous system that have to work together, so that a person can respond or act appropriately.

Sensory Systems

Sense of Touch (tactile sense)

Our sense of touch has two roles.

Firstly, it has a *protective role*, warning us about dangerous or harmful situations. For example, it warns us when our shower is “too hot” or helps us feel a spider crawling on our skin.

It also has a *discriminative role*, helping us to know what we are touching or what is touching us and where. For example, it helps us reach into our sock drawer and ‘feel around’ to find a thick pair of woolly, winter socks instead of thin, cotton summer pair without looking.

Sense of Movement (vestibular sense)

This helps us know in which direction we are moving, how fast we are going and which way up our bodies are. It helps us to balance, coordinate our body and eye movements and coordinate the left and right sides of the body.

An example of a task requiring a good sense of movement is catching or kicking a ball. This sense would also help a person to go bushwalking along a rocky bush track or help a child walk along a brick wall without falling off.

The movement/vestibular sense is also important for maintaining muscle tone and for helping a person to keep their head in an upright position.

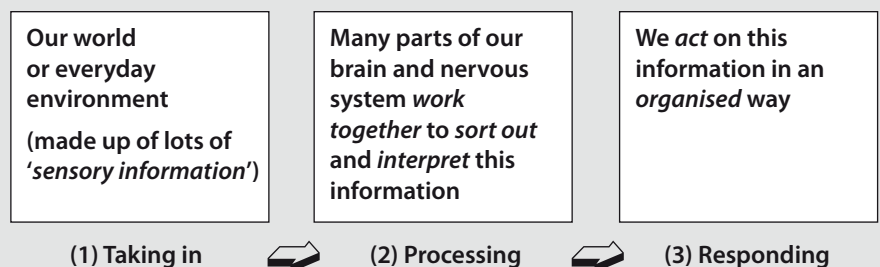
Tone is best explained as high, low or ‘just right’.

High tone can result in muscle spasticity and person looking stiff and rigid. A person with low tone could look tired and have a slumped or floppy posture, while a person with ‘just right’ tone looks neither, slumped over or rigid. They hold themselves up straight and do not look like they have to use effort to do so.

Sense of Body Position (proprioception/kinaesthesia)

This helps us to be aware of or ‘feel’ our body movements. This awareness is often automatic and occurs at an unconscious level.

Sensory Integration as information processing





Proprioception is a vital part of controlled, skilful arm, hand and leg use and allows us to move without using our eyes to continually guide movements and look at what we are doing.

It helps us manipulate objects like pencils or cutlery and to step off a gutter, onto the road without tripping over. This combined with our sense of movement also aids sitting balance, allowing us to sit on a chair without falling off it.

'Touch typing', typing without having to look at your fingers, is a skill involving a good sense of body position and touch discrimination.

Our senses of movement and body position work closely together. They work with and without vision. They provide us with body and spatial awareness, allowing us to move around our every day environment smoothly and without falling over or bumping into objects.

Motor planning (praxis)

Motor planning is needed for learning any and every new task. Efficient motor planning relies on good sensory integration.

Motor planning involves coming up with an idea of 'what' to do, planning 'how' to act and then acting out the 'what/how' plan. A task that a pre-schooler may encounter that will involve them having to motor plan may be them receiving their first tricycle for their birthday and knowing how to get on and off it without being shown.

Sensory Integrative Difficulties

Sensory integration usually develops through everyday childhood experiences.

For some children this development does not occur efficiently. For these children we predict that the 'working together' of the different sensory systems and parts of the nervous system that usually occurs during the 'processing' stage is disordered. This disorder may affect processing and interpreting information and impact on thoughts, feelings, behaviour, learning and development.

Behaviours relating to Sensory Integrative Difficulties

Some children may have trouble interpreting sounds with their ears; others may have problems processing information relating to movement or touch.

The following signs may indicate trouble processing sensory information:

- over sensitivity to touch, movement, sights or sounds,
- avoidance of specific tasks such as finger painting or running through a busy playground,
- intense sensory seeking that is not easily satisfied such as a child may continually seek out big, heavy crashing movements and rough and tumble play with peers,
- unusually high or low activity level or one that changes between extremes,
- problems with coordinating movements and appearing 'clumsy', and/or
- poorly organised behaviour.

These may be accompanied by delays in speech, language or academic achievement.

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– contact your local branch

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– contact your local branch

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